

## Variables and Expressions

■ **Concept:** Evaluating numerical and algebraic expressions

**Remember:** If there are grouping symbols, simplify within grouping symbols first, starting with the innermost grouping. Then do the operations in the following order:

- Raise numbers to a given power.
- Multiply and divide from left to right.
- Add and subtract from left to right.

To evaluate an algebraic expression, substitute the given value(s) of the variable(s). Then use the order of operations.

**Example:** Simplify:  $-5(2) + 3(-2) \div (-6)$ .  
 $-10 + (-6) \div (-6)$   
 $-10 + 1$   
 $-9$

Multiply and divide from left to right.  
 Add and subtract from left to right.

Simplify.

- $5(7) + 1$  \_\_\_\_\_
- $14 \div 2 \div 7$  \_\_\_\_\_
- $7(4) - 2 + 2(3)$  \_\_\_\_\_
- $10 - 3(2)$  \_\_\_\_\_
- $5(-14) \div 2(9 - 5)$  \_\_\_\_\_
- $12 \div 4(2)$  \_\_\_\_\_

Evaluate for  $x = 4$ ,  $y = 3$ ,  $z = 1$ .

- $x + 6y$  \_\_\_\_\_
- $2x - 4y$  \_\_\_\_\_
- $3xy$  \_\_\_\_\_
- $\frac{x + y}{2x - y}$  \_\_\_\_\_
- $2x + 3y + z$  \_\_\_\_\_
- $\frac{x + y + z}{xyz}$  \_\_\_\_\_

Evaluate each formula using the values of the variables given with the formula.

- $A = bh$ ,  $b = 40$ ,  $h = 5$  \_\_\_\_\_
- $I = prt$ ,  $p = 500$ ,  $r = 0.06$ ,  $t = 2$  \_\_\_\_\_
- $I = \frac{E}{R}$ ,  $E = 120$ ,  $R = 50$  \_\_\_\_\_
- $F = \frac{9}{5}C + 32$ ,  $C = 32$  \_\_\_\_\_
- $V = Bh$ ,  $B = 12$ ,  $h = 4$  \_\_\_\_\_